



TITLE:

# 1. The orbital angular momentum of the Co atom in Co<sub>2</sub>MnSn

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1. The Orbital Angular Momentum of the Co Atom

in  $\text{Co}_2\text{MnSn}$

大塚 祐 司

2. Quantum Molecular Dynamics Study of a Two-level

Model with an Alternative External Field

白 石 貞 純

1. The orbital angular momentum of the Co atom in  $\text{Co}_2\text{MnSn}$

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The electronic structures of  $\text{Co}_2\text{MnSn}$  are calculated by the interpolation scheme which is applicable to the Heusler alloys as an extension of the method used by Mueller (1966). The parameters in the interpolation scheme are determined so as to reproduce the energy values calculated by SAPW method. It has been expected that for the Co atom in the alloys  $\text{Co}_2\text{MnSn}$ ,  $\text{Co}_2\text{TiSn}$  and  $\text{Co}_2\text{TiAl}$ , the orbital angular momentum contributes to the magnetic moment and the internal magnetic field. Therefore, the orbital angular momentum of the Co atom in  $\text{Co}_2\text{MnSn}$  has been calculated by the perturbation theory in terms of the spin-orbit interaction.

It will be discussed whether the orbital angular momentum is quenched or not.

2. Quantum Molecular Dynamics Study of a Two-level Model  
with an Alternative External Field

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Periodic and quasi-periodic response of a two-level model, whose Hamiltonian is expressed by a pseudo-spin operator, is studied numerically and analytically, where the methods (1) Fourier analysis (2) stroboscopic representation and (3) projection of an orbit are used. In generally, the model shows a quasi-periodic motion. However, the intensity of the external